

DIESEL RPM SENSOR INSTRUCTIONS

Overview:

When using a diesel engine, you have two different choices on how you will get your engine rpm and each differs in price and installation.

The first and cheapest option is to utilize a magnetic sensor. This will require you to embed a magnet into either a flywheel or some other pulley. You would then mount the sensor overtop of the magnet and we have engine rpm. The downfall with this method is that it requires drilling your flywheel or pulley and there is the possibility of a magnet flying off if not installed properly.

The less intrusive and more expensive option is to utilize a sensor that can sense the teeth on a flywheel or the bolt heads in a pulley. This sensor does however require the use of an adapter box making the cost rise slightly. The diesel RPM sensor will allow you to obtain your engine RPM without the use of a magnet. The sensor allows you to sense either the teeth in a flywheel or the bolt heads that mount the flywheel. This kit utilizes an Autometer Diesel tach sensor and a Computech RPM Interface box.

Part Numbers:

#8059 Diesel RPM Sensor

Installation:

Magnetic Sensor:

If you are using the magnetic sensor, the first step is to determine what and where we will embed the magnet. The magnet will need to be within 2" of the center of the rotating mass, so whatever you plan on embedding the magnet in, find the center and measure 2 inches out, the magnet will need to be within that. Before mounting the magnet, make sure that you will be able to get the sensor positioned directly over top of it with a gap of 1/8".

Once you have determined the location, we want to drill a hole or at the very least start a hole. We do not need to drill all the way through where you plan to mount the magnet, but we will need to get approximately half of the magnet inset into the metal itself. By doing this, when the flywheel spins around, the magnet will be pressing up against the tight fit inside of the flywheel and not be able to spin out. Finally we want to apply a little bit of epoxy or silicone around the magnet where it is not embedded to ensure that it can't fly out the other direction.

Finally we need to install the sensor directly over top of the magnet, as perpendicular as possible.

Next we want to adjust the gap to that of a 1/8" drill bit. Please note that if your flywheel or rotating mass is wobbling at all, make sure the closest point does not damage the head of the sensor.

When wiring the Engine RPM using a driveshaft sensor, you want to wire the black wire to the DRV BLK terminal (id #33), and the white wire to Engine terminal (id #32).

Flywheel Sensor:

First we need to install the actual sensor itself. Insert the threaded end of the probe trigger into a bracket (not provided) and secure it with the two adjusting nuts. With the engine off, screw the probe trigger in until it touches, then back off 1/2 to 3/4 turn, leaving a .030" to .050" gap between the end of the trigger and the disk or bolt head. Carefully tighten the adjusting nuts, taking care not to allow the probe trigger to turn.

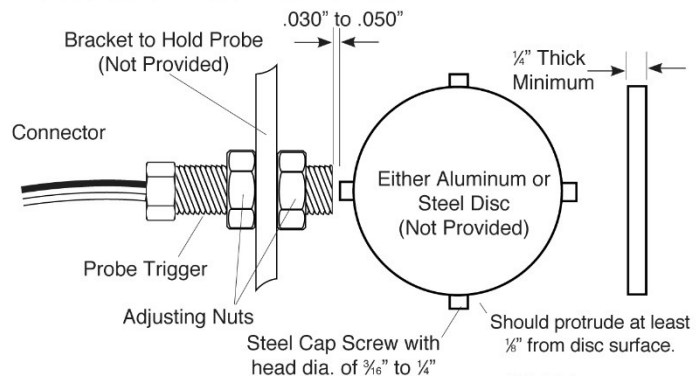
Next we need to determine where we will be mounting the Computech RPM interface box. The mounting of the rpm interface box will be dependent on the sensor extension cable coming out of it, so please mount the sensor first, then the interface box. Once the box has been mounted, we can run the cable from interface box to your Main Module. Connect the white wire to the Main module "ENG RPM" terminal (id #32), the black wire to "GND BLK" terminal (id #29), the red wire to "12V RED" terminal (id #31).

Black Wire: "GND BLK" id#29
White Wire: "ENG RPM" id#32
Red Wire: "12V RED" id#31

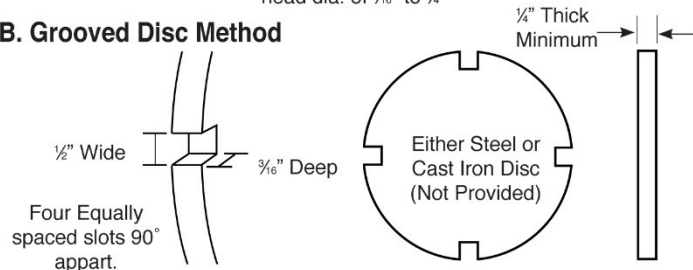
Probe Installation

1. Disconnect the connector from the probe trigger.
2. Insert the threaded end of the probe trigger into a bracket (not provided) and secure it with the two adjusting nuts (provided) as shown.
3. With engine off, screw the probe trigger in until it touches, then back off 1/2 to 3/4 turn, leaving a .030" to .050" gap between the end of the trigger and the disc or screw. Carefully tighten the adjusting nuts, taking care not to allow the probe trigger to turn.
4. Reattach the connector to the probe trigger.

A. Raised Screw Head Disc Method



B. Grooved Disc Method



Calibration:Magnetic Sensor:

The magnetic sensor requires you to change the calibration of the default Engine channel from 8 cylinder to shaft rpm with either a single or 2 magnet configuration.

To Calibrate:

- Follow the Initial Calibration instructions in the Software section, OR:
- Record a short 5 second test log file, and download the log file correctly using the SD button.
- Select Edit, then Properties. You are now in the Channel Properties area.
- Find the “Engine” line, follow it to the right, and click on the finger pushing a red button.
- Change the “Type of Sensor” to either Shaft RPM (1 magnet per revolution) or Shaft RPM (2 magnets per revolution) depending on your configuration.
- When you are done, select OK, and then “Send Config To DataMaxx”.

Diesel Tach Sensor:

To calibrate the Diesel RPM sensor, you will first need to know how many blades or teeth per revolution. Determine the amount of blades or teeth per revolution, then refer to the “Diesel RPM Calibration Table” located below. This custom value will be entered in the calibration area as your Max Cal Value

Of Teeth: _____ Max Cal Value: _____

To Calibrate:

- Record a short 5 second test log file and download the log file correctly using the SD button
- Select Edit, then Properties. You are now in the Channel Properties area.
- Find the Engine RPM line, follow it to the right and click on the finger pushing a red button.
- To the right of the “Type of Sensor” drop down list, select the calibration button again.
- Click on the “Calibration Builder” tab, and select the check box to “Use Calibration Builder” for this sensor.
- Change the decimal points to 0
- Change the units to RPM
- Change connectivity to Digital Frequency Sensor
- Set Low Frequency to 0 and Low Reading to 0
- Delete any text in Mid Frequency and Mid Reading
- Set High Frequency to 1000 and High Reading to the value you wrote above as Max Cal Value (do not use any commas)
- When you are done, select Ok, then Ok, then Send Config To DataMaxx via SD card

Testing:

Simply fire up the engine to test this sensor. If you have any complications, please call our technical support line at 301-884-5718.

Diesel RPM Sensor Calibration Table

Find the value for the number of blades and enter this into your sensors maximum calibration reading field.

# Per Rev	Max Cal Value	# Per Rev	Max Cal Value
1	1920000	51	37650
2	960000	52	36920
3	640000	53	36230
4	480000	54	35560
5	384000	55	34910
6	320000	56	34290
7	274290	57	33680
8	240000	58	33100
9	213330	59	32540
10	192000	60	32000
11	174550	61	31480
12	160000	62	30970
13	147690	63	30480
14	137140	64	30000
15	128000	65	29540
16	120000	66	29090
17	112940	67	28660
18	106670	68	28240
19	101050	69	27830
20	96000	70	27430
21	91430	71	27040
22	87270	72	26670
23	83480	73	26300
24	80000	74	25950
25	76800	75	25600
26	73850	76	25260
27	71110	77	24940
28	68570	78	24620
29	66210	79	24300
30	64000	80	24000
31	61940	81	23700
32	60000	82	23410
33	58180	83	23130
34	56470	84	22860
35	54860	85	22590
36	53330	86	22330
37	51890	87	22070
38	50530	88	21820
39	49230	89	21570
40	48000	90	21330
41	46830	91	21100
42	45710	92	20870
43	44650	93	20650
44	43640	94	20430
45	42670	95	20210
46	41740	96	20000
47	40850	97	19790
48	40000	98	19590
49	39180	99	19390
50	38400	100	19200